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HOME SECURITY SYSTEM UTILIZING TELEVISION SURVEILLANCE

Marie Van Brittan Brown and Albert L. Brown, both of
151-58 135th Ave., Jamaica, N.Y. 11434

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1 Claim

ABSTRACT OF THE DISCLOSURE

A video and audio security system for a house under control of an occupant thereof. The system includes a video scanning device at the entrance door of the house to scan a visitor outside the door, and includes audio intercommunication equipment inside and outside the door for conversing with the visitor outside the door. A lock is provided for the door with releasing means for the lock manually controlled by the occupant of the house.

This invention relates to a home security system, and more particularly concerns a system including apparatus mounted at an entrance door of a house, and other co-operating apparatus located remotely in a room of the house.

According to the invention a video scanning device is mounted on an entrance door of a house or apartment to scan a visitor standing at the door. A video picture is transmitted by wireless to a video receiver located in a bedroom or other room of the apartment or house so that an occupant of the house can see who is at the door. The apparatus includes audio intercommunication equipment so that the house occupant can converse with the visitor if desired. The door is equipped with a radio controlled lock which can be actuated by the house occupant to unbolt the door if entry of the visitor is desired. Audio recording means are provided for recording the conversation with the visitor standing at the door. A radio controlled alarm may also be provided for alerting a guard, policeman or watchman at a security station. The alarm will be actuated by and under the control of the house occupant. The security station may be equipped with video and audio receiving equipment to monitor the video and audio signals passing between the apparatus at the entrance door and the house occupant. The monitoring of these signals will occur under control of the house occupant. The video scanning device at the door can be stationary with an optical arrangement for scanning the field of view at the entrance door. Alternatively, the scanning device can be movable under control of the house occupant for varying the scanned field of view.

It is therefore a principal object of the invention to provide a security system for a house, under control of an occupant thereof.

A further object is to provide an entrance door of a house with video equipment for scanning a visitor at the door, and with audio intercommunication equipment at the door so that an occupant of the house can converse with a visitor at the door.

A further object is to provide a security system for a house, the system having devices operable by an occupant of the house, such as devices including an alarm to alert a guard at a security station, video and audio receiving equipment for monitoring video and audio signals, audio recording apparatus, a solenoid controlled safety lock at the entrance door, motor means for moving a scanning device at the entrance door, etc.

For further comprehension and of the objects and advantages thereof, reference may be had to the following description and accompanying drawings and to the ap-

ended claim in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

FIGURE 1 is a perspective view with portions broken away of parts of a security system embodying the invention, shown installed at an entrance door of a house and in a bedroom of the house.

FIG. 2 is a fragmentary perspective view of the front of the entrance door illustrating the arrangement of the apparatus thereat.

FIG. 3 is an enlarged fragmentary sectional view taken on line 3-3 of FIG. 2.

FIG. 4 is a rear elevational view of part of the entrance door.

FIG. 5 is an enlarged rear view of part of the apparatus at the entrance door.

FIG. 6 is a front view of a video-audio receiver and control unit employed in the system.

FIG. 7 is a diagram of the security system.

FIG. 8 is a perspective view of a security scanning device and part of an entrance door upon which the device can be mounted.

FIG. 9 is a side view of the scanning device of FIG. 8, shown mounted on the entrance door part of which is shown in vertical section.

FIG. 10 is a top view of the scanning device of FIGS. 8, 9, and

FIG. 11 is a sectional view, partially in side elevational taken on line 11-11 of FIG. 10.

Referring now to FIGS. 1-6, the security system includes a rectangular cabinet 20 shown movably mounted on the rear of entrance door 22 of a house or apartment 24. The cabinet has a removable rear cover 25 providing access to components inside the cabinet. In the cabinet is a video scanner 26 such as conventionally used in television systems. The scanner has a lens barrel 28 projecting out of the front side 29 of the cabinet and slightly spaced from the rear side of the door 22; see FIG. 3.

On one side 30 of the cabinet is a vertical ridge 32 which fits slidably in a groove 33 formed in a vertical rail 34 secured by brackets 35 to the rear side of the door 22. On the other side 31 of the cabinet is a slot 36 in which extends teeth 38 of a stationary rack gear 39 mounted vertically on the door by brackets 40. A spur gear 42 mounted on a horizontal shaft 43 is meshed with the teeth 38 of the rack gear. On shaft 43 is a worm gear 45 meshed in axially vertical worm 46, the worm is supported by axially aligned shafts of two motors 48, 50 inside the cabinet; see FIG. 5. The motors are electrically connected to a circuit box 54 in the cabinet. Also connected to the circuit box is a microphone 55, a loudspeaker 56 and the video scanner 26, as indicated by dotted lines in FIG. 5. A television antenna 58 is mounted on side 31 of the cabinet and is connected to the circuit box. An electric cable 59, connected to the circuit box, extends out of the cabinet and is connected to a solenoid operated bolt lock 60. This lock has a bolt 63 engageable by an associated catch member 62 mounted on the jamb 64 of the door. Knob 61 on the bolt enables manual retraction and extension of the bolt. Cable 59 is also connected to an interlock switch plug 65 mounted on the door. This plug is engaged by an associated interlock switch receptacle 66 mounted on the door jamb 64. Power supply cable 67 is connected to receptacle 66.

By the arrangement described, electric power is brought to the motors 48, 50 for driving the cabinet 20 up and down at the rear side of the door. In the door is a line of vertically spaced holes 68 in which are mounted rings 70. Lenses 72 are fitted in the rings. Each lens is covered by a plate 74 eccentrically and pivotally supported